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EPA Evaluation of the ULX-15 and ULX-15D Under Section 511 of the Motor Vehicle Information and Cost Savings Act

(U.S.) Environmental Protection Agency
Ann Arbor, MI

May 81

U.S. Department of Commerce
National Technical Information Service
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EPA-AA-TEB-511-81-4

EPA Evaluation of the ULX-15 and ULX-15D Under Section 511 of the Motor Vehicle Information and Cost Savings Act

by

Edward Anthony Barth

May, 1981

Test and Evaluation Branch
Emission Control Technology Division
Office of Mobile Source Air Pollution Control
U.S. Environmental Protection Agency

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16. ABSTRACT

This document announces the conclusions of the EPA evaluation of the ULX-15 and ULX-15D additives under provisions of section 511 of the Motor Vehicle Information and Cost Savings Act.

On January 19, 1981, the EPA received a request from Fuelteck Corporation for evaluation of a fuel saving device termed ULX-15 and ULX-15D. These devices are fuel additives that are claimed to improve gasoline and diesel engine combustion and thereby increase fuel economy.

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ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 610]

[FRL_____]

FUEL ECONOMY RETROFIT DEVICES

Announcement of Fuel Economy Retrofit Device Evaluation for "ULX-15 and ULX-15D"

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Fuel Economy Retrofit Device Evaluation.

SUMMARY: This document announces the conclusions of the EPA evaluation of the "ULX-15 and ULX-15D" additives under provisions of Section 511 of the Motor Vehicle Information and Cost Savings Act.

BACKGROUND INFORMATION: Section 511(b)(1) and Section 511(c) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2011(b)) requires that:

(b)(1) "Upon application of any manufacturer of a retrofit device (or prototype thereof), upon the request of the Federal Trade Commission pursuant to subsection (a), or upon his own motion, the EPA Administrator shall evaluate, in accordance with rules prescribed under subsection (d), any retrofit device to determine whether the retrofit device increases fuel economy, and to determine whether the presentations (if any) made with respect to such retrofit devices are accurate."

(c) "The EPA Administrator shall publish in the Federal Register a summary of the results of all tests conducted under this section, together with the EPA Administrator's conclusions as to -

(1) the effect of any retrofit device on fuel economy;

(2) the effect of any such device on emissions of air pollutants; and

(3) any other information which the Administrator determines to be relevant in evaluating such devices."

EPA published final regulations establishing procedures for conducting fuel economy retrofit device evaluations on March 23, 1979 [44 FR 17946].

BACKGROUND INFORMATION: Section 511(b)(1) and Section 511(c) of the Motor Vehicle Information and Cost Savings Act (15 U.S.C. 2011(b)) requires that:

(b)(1) "Upon application of any manufacturer of a retrofit device (or prototype thereof), upon the request of the Federal Trade Commission pursuant to subsection (a), or upon his own motion, the EPA Administrator shall evaluate, in accordance with rules prescribed under subsection (d), any retrofit device to determine whether the retrofit device increases fuel economy, and to determine whether the presentations (if any) made with respect to such retrofit devices are accurate."

(c) "The EPA Administrator shall publish in the Federal Register a summary of the results of all tests conducted under this section, together with the EPA Administrator's conclusions as to -

(1) the effect of any retrofit device on fuel economy;

(2) the effect of any such device on emissions of air pollutants; and

(3) any other information which the Administrator determines to be relevant in evaluating such devices."

EPA published final regulations establishing procedures for conducting fuel economy retrofit device evaluations on March 23, 1979 [44 FR 17946].

ORIGIN OF REQUEST FOR EVALUATION: On January 19, 1981, the EPA received a request from Fuelteck Corporation for evaluation of a fuel saving device termed "ULX-15 and ULX-15D". These Devices are fuel additives that are claimed to improve gasoline and diesel engine combustion and thereby increase fuel economy.

Availibility of Evaluation Report: An evaluation has been made and the results are described completely in a report entitled: "EPA Evaluation of the ULX-15 and ULX-15D Under Section 511 of the Motor Vehicle Information and Cost Savings Act," report number EPA-AA-TEB-511-81-4, consisting of 21 pages, including all attachments.

Copies of these reports may be obtained from the National Technical Information Center by using the above report number. Address requests to:

National Technical Information Center
U.S. Department of Commerce
Springfield, VA 22161
Phone: Federal Telephone System (FTS) 737-4650
Commercial (703) 487-4650

Summary of Evaluation

EPA fully considered all of the information submitted by the Device manufacturer in the Application. The evaluation of the "ULX-15 and ULX-15D" additives was based on that information.

The applicant was advised on several occasions of the requirement for submittal of valid test data following the established EPA test procedures. The applicant submitted no valid test data with the application for evaluation. Analysis of the information submitted by the Applicant did not prove that the use of "ULX-15 and ULX-15D" would enable a vehicle operator to improve a vehicle's fuel economy.

Thus, there is no technical basis to support any claims for a fuel economy improvement due to the use of the "ULX-15 and ULX-15D" additives.

FOR FURTHER INFORMATION CONTACT: Merrill W. Korth, Emission Control Technology Division, Office of Mobile Source Air Pollution Control, Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, Michigan 48105, (313) 668-4299.

_____
Date

_____
Edward F. Tuerk
Acting Assistant Administrator
for Air, Noise, and Radiation

EPA Evaluation of the ULX-15 and ULX-15D Additives under Section 511 of the Motor Vehicle Information and Cost Savings Act

The following is a summary of the information on the additives as supplied by the Applicant, and the resulting EPA analysis and conclusions.

1. Marketing Identification of the Additives:

"Fuelteck, a public corporation, produces a gasoline combustion improver, ULX-15, and a Diesel combustion improver ULX-15D. The identification of the product is only through its trade names; ULX-15 and ULX-15D"

2. Inventor of the Additives and Patents:

A. Inventor

James Michaels
26 Vermont Lane
Commack, NY 11725

B. Patent

"The Patent was issued August 19, 1975 and the Serial Number for the patent is 3,900,297. (A copy of the Patent is enclosed.)"

The patent was not provided nor made available after subsequent requests to the Applicant to provide it.

3. Manufacturer of the Additives:

Fuelteck Corporation
2120 Fifth Avenue
Ronkonkoma, NY 11779.

4. Manufacturing Organization Principals:

"Fuelteck Corporation is a public corporation whose officer's are the following:

Chairman of the Board	Allan Gittleson
President	Stanton Rappaport
V. P.	Norman R. Tengstrom
Secretary	W. Robert Tucker
Treasurer	W. Robert Tucker"

5. Marketing Organization in U.S. making Application:

Fuelteck Corporation
2120 Fifth Avenue
Konkonkoma, NY 11779.

Subsequent to the original application, the applicant requested the following address be used on all communication:

Fuelteck Corporation
119 Woodbury Road
Huntington, NY 11743
Phone: (516) 626-1021

6. Applying Organization Principals:

"The principal officers of the organization making the application are the same as in item #4. The person who will represent the organization in communications with the EPA is E. David Woycik, Jr. - V. P. Operations."

7. Description of the Additive:

A. Purpose of the Additive (as supplied by Applicant):

"The objective for developing such a combustion improver was to increase the miles per gallon received from each gallon of fuel used. In addition, Fuelteck's combustion improver reduces the percentage of harmful gases which are emitted from the exhaust ports of gasoline and/or Diesel engines. The purpose for marketing such combustion improvers is to decrease America's dependency upon gasoline and diesel fuels and to increase the quality of air which is emitted from the exhaust ports of such engines."

B. Theory of Operation (as supplied by Applicant):

"Fuelteck's Combustion Improvers, ULX-15 and ULX-15D, are composed of 85% nitro paraffins, 10% oil, and 5% catalyst. (See Patent)" The patent was not provided.

"At elevated temperatures, the active components of the additive are broken down and the molecules disintegrate, releasing the oxygen from the nitrogroups. In the first portion of the ignition, during the first few microseconds, combination of the fuel with the air oxygen takes place. Immediately following this, at the elevated flame temperature, the nitro-group disintegrates and the remaining unburned hydrocarbons in the combustion chamber are re-ignited and burn with the liberated oxygen from the nitrogroups. The result is a more complete burning process culminating with increased gas mileage up to 20%."

C. Detailed Description of Construction (as supplied by Applicant):

"The Detailed Description of Construction of the combustion improver is contained within the patent (see copy enclosed). Also refer to Section (7B)."

The patent was not provided nor made available after subsequent requests to the Applicant to provide it.

8. Applicability of the Additive (as supplied by Applicant):

"Fuelteck's Combustion Improver, ULX-15 (gasoline) is applicable to all gasoline engines. The make, model, engine size and carburetion, make/year, transmission type and ignition are not required. Since the theory of operation is defined in Section (7B). It should be apparent that Fuelteck's combustion improver will perform in any gasoline engine. For example, the combustion improver will work with a 1970 camaro, 318 hp. engine, automatic, sparkplug ignition; as well as a 1980 Cadillac Seville, automatic, fuel-injected, electronic ignition system.

Fuelteck's Diesel Combustion Improver, ULX-15D, works equally as well in all Diesel engines. Whether the engine is a 1978 Mack, standard transmission, engine size 675-237A, 225 hp, standard wheel or a 1980 Cutlass Oldsmobile Diesel, 318 hp. with fuel injection, is of no significance. The savings in gas mileage improvement is constant no matter what type or year of vehicle. The Diesel Combustion Improver also reduces sulfated ash by 75%. (See Newing Laboratory report). There is no crystallization of the Diesel Combustion Improver down to a temperature of (minus 35° C)."

9. Additive Installation - Tools and Expertise Required (as supplied by Applicant):

A. "Fuelteck's Gasoline Combustion Improver, ULX-15, is added directly to the cars/truck's tank. For every 1 gallon of gasoline that is in your tank, add (3/4) of an ounce of ULX-15. Therefore, if you have a 20 gallon tank, you will add 15 ounces of Fuelteck ULX-15 and then fill up. (See instructions attached for gasoline usage.)" See Attachment A.

B. "Fuelteck's Diesel Combustion Improver, ULX-15D, is also added directly to the cars/truck's fuel tank. For every gallon of diesel fuel that is in your fuel tank, add one (1) ounce of ULX-15D. Therefore, if you have a 20 gallon tank, you will add 20 ounces of Fuelteck ULX-15D, and then fill up. (See instructions attached for diesel usage.)" See Attachment A.

10. Additive Operation (as supplied by Applicant):

"The Operation Instructions are contained in Section (9) above. A copy of the instructions for Gasoline and Diesel engines are attached." See Attachment A.

11. Maintenance (claimed):

"Since this application is not concerned with any external additional devices, there is no maintenance involved with our combustion improver. The only item which requires some sort of external assistance is that which is needed to add the combustion improver to the cars/truck's fuel tank as described in Section (9)."

12. Effects on Vehicle Emissions (non-regulated) (claimed):

A. "After considerable testing of Fuelteck's combustion improver's, there appears to be no substance emitted, other than those pollutants regulated by the EPA. Not only are there no other pollutants, but, in addition, there is a reduction of nitrous oxides and sulfated ash. Scott Environmental Technology, Inc. performed exhaust emission measurements for Fuelteck Corporation on February 15, 1979. The tests were performed on a one cylinder, two cycle, 3 hp. Briggs and Stratton engine. The engine as tested was equipped by the Sponsor with the following equipment: dynamometer to apply load and torque, thermocouple to measure engine temperature and tachometer to measure RPM. A Scott Chemiluminescense NOx analyzer, Model 125, was set up by Scott's field engineer. The fuel used was Citgo unleaded gasoline for the tests. The engine was run at the same conditions for the gasoline (1st test - gasoline only) and with the 2nd test (gasoline plus ULX-15).

"The addition of Fuelteck's additive to the one cylinder, two cycle, 3 hp. Briggs and Stratton engine resulted in a decrease in nitrogen oxides emissions (NOx) of approximately 90%. The fuel additive not only reduced the NOx, but also reduced the average engine operating temperature from 435°F to 365°F, a difference of 70°F. No mechanical adjustments were made on the engine while these tests were being performed by the Scott engineer. For further inquiry, please see the attached Scott Environmental Technology, Inc. report, (dated February 15, 1979.)"

B. Sulfated Ash Report

"Newing Laboratories, Inc. of Islip, NY conducted sulfated ash content tests for Fuelteck, Inc., dated May 22, 1980. The results were the following:

> "The amount of sulfated ash content in regular gasoline fuel was decreased 75% from .002% sulfated ash to .0005% sulfate ash after using Fuelteck's ULX-15. In diesel fuel, the amount was decreased 35% from .017% to .011% with diesel fuel plus Fuelteck's ULX-15D. (See Newing Laboratories for further results.)"

C. Reduction of Hydrocarbons (HC) and Carbon Monoxide (CO):

"In all 3 Pratt tests, from the readings of the EPA test meter, it was determined that the contents of the Hydrocarbons (HC) and carbon monoxide (CO) in the engine emissions were reduced.

"The reduction of Hydrocarbons (HC) in the engine emissions ranged from a minimum of 30.5% to a maximum of 34.4%. The average was computed to be a 32.5% reduction in hydrocarbons.

"The reduction of carbon monoxide ranged from a minimum of 17.4% reduction to a maximum of 18% reduction. The average was computed to be 17.7%."

13. Effects on Vehicle Safety (claimed):

"Fuelteck's ULX-15 is non-corrosive to ferrous metals. Cold rolled steel strips in contact with ULX-15 for 72 hours at room temperature failed to show any weight loss. Polyethylene is compatible with ULX-15. When mixed in the proper proportions in fuel, there is no effect on those surfaces which are compatable with the fuels.

"There is no effect of ULX-15 on viscosity of the lubricants, when added as recommended.

"In conclusion,, Fuelteck's ULX-15 and ULX-15D has no corrosive effects upon the engine components when used as recommended. (See Bernard Newman, Ph D., report for further information)."

14. Test Results (Regulated Emissions and Fuel Economy) (claimed):

"Please see the enclosed emissions and fuel economy reports from Pratt Institute, Scott Laboratories, and Newing Laboratories. These reports have been thoroughly explained in Section 12 of this application."

15. Analysis

A. Description of the Additive:

(1) The primary purpose of the Additives is claimed to be improved fuel economy.

(2) The theory of operation, given in Section 7B, is that the additive causes the unburned hydrocarbons in the combustion chamber to be completely burned. Since a properly tuned vehicle engine emits little unburned hydrocarbons, it is highly questionable that a 20% fuel economy benefit could be achieved solely by use of the Additive.

Also, since the applicant did not provide either a patent or a chemical description of the Additive, EPA is unable to judge if the Additive actually does behave in theory as claimed in Section 7B.

B. Applicability of the Additive:

The applicability of the Additives, as stated in the application, "ULX-15" for all gasoline engines, and "ULX-15D" for all diesel engines, are judged to be correct.

C. Additive Installation - Tools and Expertise Required:

The installation instructions contained in Section 9 and in Attachment A are judged to be adequate for the physical addition of the Additive to the fuel by most vehicle operators. The only operator caution is to add the Additive to a partially filled tank, so that complete mixing can occur during fill-ups.

D. Additive Operation:

No specific instructions were provided for operation of a vehicle with the Additive, and none were judged to be required.

E. Additive Maintenance:

The Additives are judged to require no maintenance, just periodic addition to the fuel as stated.

F. Effects on Vehicle Emissions (non-regulated):

Since the Applicant failed to provide a detailed description of the Additives, EPA is unable to judge whether or not the Additive would adversly affect non-regulated emissions.

The Applicant references testing performed by Scott Environmental Technology, Inc., Newing Laboratories, and Pratt Institute, as evidence that the Additive causes no harmful non-regulated emission effects. These data do not support the Applicant's claim of a negative effect on non-regulated emissions.

(1) The Scott Environmental Technology, Inc. testing consisted of constant speed tests of a single cylinder, two cycle, 3 horsepower engine. These results cannot be extrapolated nor inferred to directionally indicate what might be achieved on a multi-cylinder, four cycle automotive engine, during the EPA cold/hot start transient vehicle tests.

(2) The Newing Laboratories report consisted of the test results for a standard ASTM test for fuel and oil ash content. Again, the results cannot be extrapolated or inferred to directionally indicate the Additive effect during transient cycle vehicle testing.

(3) The Pratt Institute testing consisted of constant speed tests of two single cylinder, four cycle, 3.5 horsepower engines (one gasoline and one diesel). Again, these results cannot be extrapolated nor inferred to directionally indicate what might be achieved on a multi-cylinder, automotive engine during the EPA cold/hot start transient vehicle tests.

G. Effects on Vehicle Safety:

The Additive is normally intended to be added to the vehicle's fuel tank by the operator during refueling. Since the Applicant provided no information, warnings, cautions, or packaging information to the user, EPA is unable to judge the safety of the Additive to the user.

Based on the information provided, EPA is unable to judge if the Additive is compatible with vehicle fuel systems.

H. Test Results Supplied by Applicant:

Applicant did not submit any test data per the Federal Test Procedure of Highway Fuel Economy Test. These are the only EPA recognized test procedures.(1) This requirement for test data, following these procedures, is stated in the application test policy documents and in two subsequent letters EPA sent to the applicant. (Attachments C, D, and E) The test data submitted by the Applicant are listed below and evaluated.

(1) The Applicant submitted test data for testing performed by Scott Environmental Technology, Inc., Newing Laboratories, and Pratt Institute as evidence of the beneficial effects of "ULX-15 and ULX-15D". These data do not support vehicle fuel economy or emission benefits for the reasons cited in paragraphs 16 F (1), (2), and (3).

(2) The Applicant submitted testimonials from a variety of satisfied customers. These testimonials are summarized in Attachment B.

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(1) From EPA 511 Application Test Policy documents:

Test Results (Regulated Emissions and Fuel Economy):
Provide all test information which is available on the effects of the device on vehicle emissions and fuel economy.

The Federal Test Procedure (40 CFR Part 86) is the only test which is recognized by the U.S. Environmental Protection Agency for the evaluation of vehicle emissions. The Federal Test Procedure and the Highway Fuel Economy Test (40 CFR Part 600) are the only tests which are normally recognized by the U.S. Environmental Protection Agency for evaluating fuel economy. Data which have been collected in accordance with other standardized fuel economy measuring procedures (e.g. Society of Automotive Engineers) are acceptable as supplemental data to the Federal Test Procedure and Highway Fuel Economy Data will be used, if provided, in the preliminary evaluation of the device. Data are required from the test vehicle(s) in both baseline (all parameters set to manufacturer's specifications) and modified forms (with device installed).

Although the users undoubtedly felt they had achieved real benefits through the use of the Additive, these data represent a relatively uncontrollable test of the Additive and cannot be used to validate the claims for the Additives given in the application and in Attachment A.

16. Conclusions

EPA fully considered all of the information submitted by the Additive manufacturer in the Application. The evaluation of the "ULX-15 and ULX-15D" additives was based on that information.

The applicant was advised on several occasions of the requirement for submittal of valid test data following the established EPA test procedures. The applicant submitted no valid test data with the application for evaluation. Analysis of the information submitted by the Applicant did not prove that the use of the "ULX-15 and ULX-15D" would enable a vehicle operator to improve a vehicle's fuel economy.

Thus, there is no technical basis to support any claims for a fuel economy improvement due to the use of the "ULX-15 and ULX-15D" additives.

List of Attachments

Attachment A	ULX-15 and ULX-15D instructions
Attachment B	Summary of Fuelteck testimonials provided with 511 application
Attachment C	EPA letter to Fuelteck, dated November 7, 1980
Attachment D	EPA letter to Fuelteck, dated February 25, 1981
Attachment E	EPA letter to Fuelteck, dated February 26, 1981

ULX-15 and ULX-15D COMBUSTION IMPROVERS

These products are mixtures of organic compounds developed to improve the combustion properties of hydrocarbon fuels. ULX-15 is intended for use in Gasoline and Gasohol while ULX-15D is intended for use in Diesel Fuel and Home Heating Oil. There is no evidence of damage, such as corrosion or other chemical or physical attack, to any engine or its components or to any heating system due to the use of these products.

Neither product presents a toxicological or an explosive hazard.

Benefits to be expected through the use of these combustion improvers in either gasoline or Diesel Engines are as follows:

DECREASE IN FUEL CONSUMPTION

REDUCED EMISSIONS OF HC, CO, AND NO_x

EASIER STARTING

IMPROVED COMBUSTION OF FUEL CONTAINING MOISTURE

REDUCED MAINTENANCE TIME

Additionally, in Gasoline Engines:

QUICK THROTTLE RESPONSE

REDUCED "HESITATION"

FASTER ACCELERATION

SOMEWHAT LOWER HEAD TEMPERATURE

Additionally, in Diesel Engines:

SMOOTHER RUNNING

REDUCED NOISE

LOWER SULFATED ASH DEPOSITS

BREAK-UP OF SOLIDS IN FUEL

These products should not be added to a full fuel tank unless some provision is made for thorough mixing. It is recommended that the proper amount of additive be added to a partially filled tank. This can then be mixed by the addition of more fuel so that the final concentration of combustion improver in gasoline does not exceed 3/4 ounce per gallon and for diesel fuel and home heating oil does not exceed one ounce per gallon.

For optimal performance, it is not advisable to exceed the recommended concentration of combustion improver. Excessive amounts do not improve performance and could result in poorer performance while lowering cost efficiency.

When adding to a previously treated fuel, treat only for the amount of fuel to be added.

Hutchins

Attachment B

Fuelteck Corp.
2120 Fifth Avenue, Ronkonkoma, NY 11779 (516)585-5885

Enclosed in this folder are testimonials and test data relating to Fuelteck's combustion improvers, ULX-15 and ULX-15D, as follows.

1. Testimonials from:

A. Nassau County, New York, indicating an 18% increase in miles per gallon.

B. Metropolitan News Company, an 85 truck fleet, has been using our product for one year and reports a decrease in fuel consumption of 16%. They also attest to a reduction in deposit build-up on spark plugs, easier starting in cold weather and quicker acceleration.

C. A&P Food Stores of Garden City, New York, conducted a diesel test on a 1978 Mack Truck. The result was a 27% increase in miles per gallon.

D. Mina Fuel Oil Co., Corona, N.Y., reports a 15 to 20% savings in fuel consumption with much easier starting in cold weather.

E. Puritan Fuel Oil Co. has indicated increased miles per gallon from using Fuelteck's ULX-15D. Also, they report cleaner injectors, easier starting in cold weather and, therefore, less maintenance.

2. Test Reports as follows:

A. Pratt Institute concluded that the average reduction in fuel consumption using gasoline was 25%. Additionally, the average reduction in fuel consumption for diesel fuel was 28%. The average reduction of hydrocarbon (H.C.) in the engine emissions was 32.5%. Similarly, the average reduction in carbon monoxide (C.O.) was computed to be 17.7%.

B. Scott Environmental Laboratory conducted a nitrogen oxide emission test and found that by using Fuelteck combustion improver there was a reduction of nitrogen oxide (N.O.) of approximately 90%. It also lowered the engine temperature 70° Fahrenheit.

C. Newing Laboratories conducted a sulfated ash test and concluded that Fuelteck's combustion improver reduces the sulfated ash by 75%.

3. Photographs showing how clean Fuelteck burns compared to competitor's products.

Attachment C

Reproduced from best available copy.

November 7, 1980

Mr. David Woycik
2120 5th Avenue
Ronkonkoma, NY 11779

Dear Mr. Woycik:

Per your telephone request please find enclosed copies of the EPA Test Policy, the Federal Regulations pertaining to a fuel economy device, and the Application Format for use with Fuel Economy Retrofit Device Evaluation under Section 511 of the Motor Vehicle Information and Cost Savings Act.

I hope that this information will be of value to you.

Sincerely,

Merrill W. Korth, Device Evaluation Coordinator
Test and Evaluation Branch

Enclosures

ECTD:TEB:Korth:cd:2565PlymouthRd.:11/07/80

MWK

February 26, 1981

Mr. E. David Woycik, Jr.
Footeck Corporation
119 Woodbury Rd.
Huntington, NY 11743

Dear Mr. Woycik:

A preliminary evaluation of your application has been performed. This evaluation shows the following:

1. That the patent for the device was referenced but not enclosed with the application.

2. Testing was not performed on vehicles in accordance with the EPA procedures (appropriate documents enclosed).

Lacking the necessary information, the EPA will not be able to perform an in-depth evaluation of the products. We would be pleased to assist you in the development of a test plan in accordance with the enclosed documents.

We would appreciate hearing from you by March 20, 1981 so that the complete evaluation can be performed in a timely fashion.

Sincerely,

Merrill W. Korth, Senior Project Manager
Test and Evaluation Branch

Enclosures

cc. P. Hutchins

ECTD:TEB:HUTCHINS:RT:0259:X459:2565PLYMOUTHRD:2/3/81

Attachment E

Reproduced from best available copy.

February 26, 1981

Mr. E. David Woycik, Jr.
Fuelteck Corporation
119 Woodburg Road
Huntington, NY 11743

Dear Mr. Woycik:

The Environmental Protection Agency is charged by Congressional mandate to evaluate fuel economy and emission control devices. While the EPA does not actually "approve" such devices, it does conduct evaluations for the purpose of increasing the common knowledge in the area. For this reason, the outcome of any testing by EPA becomes public information. It is this information which may be cited although no claims can be made that any EPA findings constitute "approval" of the device or system.

Enclosed with this letter is a packet of materials which you will need to apply for an EPA evaluation of your device. This packet consists of 1) an application format, 2) a document entitled "EPA Retrofit and Emission Control Device Evaluation Test Policy" and 3) a copy of the applicable Federal Regulations.

In order for the EPA to conduct an evaluation of your device, we must have an application. Once you have reviewed all the documents in the packet, you should prepare an application in accordance with the guidelines of the application format. A critical part of the application is the substantiating test data. The required test results will have to be obtained at a laboratory of your choice. Such testing would be conducted at your expense. A list of laboratories which are known to have the equipment and personnel to perform acceptable tests has been included in the enclosed packet. If you desire, we can assist in the development of a satisfactory test plan.

Once we receive your application, it will be reviewed to determine if it meets the requirements listed in the format. If so, you will be advised of our decision whether or not EPA will perform any confirmatory testing. Any EPA testing will be performed at no cost to you, and you will be given the opportunity to concur with our test plan. Once this testing is complete, an evalation report will be written solely on the basis of the test data submitted and our engineering analysis.

[illegible]

There are, however, several aspects concerning testing at an outside laboratory which I would like to bring to your attention at this time:

Minimum Test Requirements - Although different types of devices may require a more complex test plan, the minimum we require involves two vehicles and two test sequences run in duplicate. The vehicles should be selected from those listed in Table 1; if possible. Each vehicle is to be set to manufacturer's tune-up specifications for the baseline tests.

The tests are conducted in a "back-to-back" manner, once with the vehicle in baseline condition and again with the device installed with no vehicle adjustments between tests. If installation of the device also involves some adjustments, e.g. timing, fuel-air mixture, choke or idle speed, another test sequence with only these adjustments should be inserted between the first and last. Also as a minimum, the test sequence shall consist of a hot-start LA-4 portion (bags 1 and 2) of the Federal Test Procedure (FTP) and a Highway Fuel Economy Test (HFET). The details of these tests are contained in the enclosed packet. Although only a hot-start FTP is required to minimize the costs to you, you are encouraged to have the entire cold-start test performed since any testing and evaluation performed by EPA will be based on the complete FTP and you may wish to know how a vehicle with your device performs over this official test. As a final requirement, the personnel of the outside laboratory you select should perform every element of your test plan. This includes preparation of the test vehicle, adjustment of parameters and installation of the device.

Submission of Data - We require that all test data obtained from the outside laboratories in support of your application be submitted to us. This includes any results you have which were declared void or invalid by the laboratory. We also ask that you notify us of the laboratory you have chosen, when testing is scheduled to begin, what tests you have decided to conduct, allow us to maintain contact with the laboratory during the course of the testing, and allow the test laboratory to directly answer any questions at any time about the test program.

Cost of the Testing - The cost of the minimum test plan (two vehicles, two test sequences in duplicate) described above should be less than $2000 per vehicle and less than $4000 for the total test at any of the laboratories on the list. You will have to contact them individually to obtain their latest prices.

Outcome of the Tests - Although it is impossible to accurately predict the overall worth of a device from a small amount of testing, we have established some guidelines which will help you determine whether the test results with your device should be considered encouraging. These values have been chosen to assure both of us that a real difference in fuel economy exists and that we are not seeing only the variability in the results. The table below presents the minimum number of cars that need to be tested for varying degrees of fuel economy improvement assuming a typical amount of variability in fuel economy measurement. For a minimum test plan which was conducted on a fleet of two cars, the

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average improvement should be at least 9%. If at least an 8% difference in average fuel economy can be shown, then we would be able to say statistically at the 80% confidence level that there is a real improvement.

Similarly, we would expect a minimum of 5% improvement for a fleet of 5 vehicles. Test results which display a significant increase in emission levels should be reason for concern.

Minimum Fuel Economy Improvements versus Size of Test Fleet

Fleet Size	Average Improvement Required
2	8%
3	7%
4	6%
5	5%
10	4%
25	2%

Once we receive your application, it will be reviewed to determine if it meets the requirements listed in the format. If your application is not complete, we will ask you to submit further information or data. After any missing information has been submitted, your application will be reconsidered and once it meets our requirements, you will be advised of our decision whether or not EPA will perform any confirmatory testing. Any EPA testing will be performed at no cost to you and you will be given the opportunity to concur with our test plan. Once this testing is complete, an evaluation report will be written. If no further testing is required, the report will be written solely on the basis of the test data submitted and our engineering analysis.

Despite the current backlog and increasing number of inquiries regarding fuel economy device evaluations, the EPA intends to process your application in as expeditious a manner as possible. We have established a goal of twelve weeks from the receipt of a complete application to the announcement of our report. The attainment of this objective requires very precise scheduling and we are depending on the applicant to respond promptly to any questions or to submit any requested data. Failure to respond in a timely manner will unduly delay the process. In the extreme case, we may consider lack of response as a withdrawal of the application.

I hope the information above and that contained in the enclosed documents will aid you in the preparation of an acceptable application for an EPA evaluation of your device. I will be your contact with EPA during this process and any subsequent EPA evaluation. My address is EPA, Motor Vehicle Emission Laboratory, 2565 Plymouth Road, Ann Arbor, Michigan, 48105. The telephone number is (313) 668-4200. Please contact me if you have any questions or require any further information.

Sincerely,

Merrill W. Korth
Device Evaluation Coordinator
Test and Evaluation Branch

Enclosures